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NEW DELHI, INDIA
TOKYO, JAPAN

August 5, 1997

Mr. William F. Caton, Acting Secretary
Office of the Secretary
Federal Communications Commission
1919 M Street, N.W. Room 222
Stop Code 1170
Washington, D.C. 20554

Re: Ex Parte Presentation of Final Analysis Inc. regarding Government User Opposition to the Industry Band Sharing Plan for the Non-Voice Non-Geostationary Mobile Satellite Service ("NVNG MSS" or "Little LEO"), IB Docket No. 96-220

Dear Mr. Caton:

Pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, Final Analysis Inc., by its attorneys, hereby submits the enclosed written *ex parte* presentation in the above-referenced proceeding. As required by Section 1.1206, the original and two copies of the written *ex parte* presentation are enclosed.

Please do not hesitate to contact the undersigned at the above-referenced number if you have any questions regarding this matter.

Respectfully submitted,

Peter A. Batacan
Counsel to Final Analysis, Inc.

Enclosures

DC01/BATAP/46904.41

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August 5, 1997

Mr. Peter Cowhey
Chief, International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 800
Washington, D.C. 20554

Re: Ex Parte Presentation of Final Analysis, Inc. regarding Government User Opposition to the Industry Band Sharing Plan for the Non-Voice Non-Geostationary Mobile Satellite Service ("NVNG MSS" or "Little LEO"), IB Docket No. 96-220

Dear Mr. Cowhey:

Final Analysis, Inc. ("Final Analysis"), by its attorneys, hereby submits this response to *ex parte* correspondence filed by the National Telecommunications and Information Administration ("NTIA"), the National Oceanic and Atmospheric Administration ("NOAA") and various branches of the U.S. Department of Defense ("DoD") [collectively, the "government users"] in the above-referenced proceeding.[1/] The government users oppose adoption of the Little LEO Industry Band Sharing Plan based on interference concerns.[2/] However, Final Analysis continues to support the Industry Band Sharing Plan as it will provide for the immediate licensing of all second round NVNG MSS applicants.

1/ Copies of the relevant government user *ex parte* correspondence referenced herein are attached hereto in Attachment A.

2/ *See* Memorandum From CTA Commercial Systems, Inc., E-Sat, Inc., Final Analysis Communication Services, Inc., GE Starsys Global Positioning, Inc., Orbital Communications Corp., and Volunteers in Technical Assistance to Ruth Milkman, *Re: IB Docket No. 96-220: NVNG MSS Industry Band Plan*, filed in IB Docket No. 96-220 on April 11, 1997 (hereinafter, the "Industry Band Sharing Plan" or "the Plan") attached hereto as Attachment B.

Final Analysis submits this *ex parte* response to show that there has not been adequate opportunity to address the government users' potential interference concerns and that there is no support for the government users' request that the Commission reject the Industry Band Sharing Plan. Accordingly, for the reasons discussed below, Final Analysis urges the Commission to adopt the Industry Band Sharing Plan and provide the Little LEO industry with the opportunity to meet with government users to coordinate the Plan.

I. BACKGROUND

On April 11, 1997, after careful negotiation and review, six of the seven second round Little LEO applicants agreed to and filed the Industry Band Sharing Plan in IB Docket No. 96-220. The Plan is designed to: (i) include frequency assignments for all second round applicants; (ii) protect existing licensees and users (both government and commercial) from harmful interference; (iii) promote spectrum efficiency; and (iv) eliminate any potential mutual exclusivity. The Plan is designed to prevent interference to government users in the 137-138 MHz NOAA band and 400-401 MHz DoD bands by means of a frequency sharing method called "time-sharing." *See* Attachment B.

The government users present three arguments in opposition to the Industry Band Sharing Plan. First, the government users assert that time-sharing is an unproven technique.[3/] Second, the government users claim -- without proffering any technical basis or evidence in support for their belief -- that time-shared use of the NOAA and DoD bands by commercial Little LEO operators poses an unacceptable risk of interference to government operations in the 137-138 MHz and 400-401 MHz bands, and that the Industry Band Sharing

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3/ *See* Letter from Frank M. Holderness, Army Representative, Nelson Pollack, Air Force Representative, Bruce Swearingen, Navy Representative and Richard Barth, Commerce Representative, National Oceanic and Atmospheric Administration, Office of Radio Frequency Management, to Norbert Schroeder, Acting Chairman, IRAC, National Telecommunications and Information Administration, dated April 21, 1997 and filed in IB Docket No. 96-220 on May 27, 1997 ("NTIA Letter"); Memorandum for Administrator NTIA from Gregory S. Martin, Maj. Gen., U.S. Air Force, Director of Operational Requirements and George P. Lampe, Maj. Gen., U.S. Air Force, Deputy Director, Communications and Information, attached to Letter from Richard Parlow to Chief, International Bureau, FCC dated May 7, 1997 and filed in IB Docket No. 96-220 on May 27, 1997 ("Air Force Memorandum"); and Letter from D. James Baker, Under Secretary, NOAA, to Larry Irving, Assistant Secretary for Communications and Information, NTIA, dated May 5, 1997, attached to Letter from Richard Parlow to Chief, to Chief, International Bureau, FCC dated May 7, 1997 and filed in IB Docket No. 96-220 on May 27, 1997 ("NOAA Letter").

Plan should therefore be denied.[4/] Third, the government users claim that they agreed to allow time-shared access to the 137-138 MHz and 400-401 MHz bands based on their understanding that such access would be limited to only one Little LEO system and imply that time-sharing will not prevent interference if additional Little LEO systems are introduced into the NOAA and DoD bands under the Industry Band Sharing Plan.[5/]

The FCC staff has made clear in various meetings that it is considering adoption of an alternative band plan (the "Staff Plan"). Final Analysis believes that the Staff Plan should not be adopted because it would curtail spectrum available for licensing of second-round Little LEO operators and increase the likelihood of mutual exclusivity.

II. FINAL ANALYSIS HAS DEMONSTRATED IN TECHNICAL ANALYSES AND "REAL-WORLD" SETTINGS THAT TIME-SHARING CAN AND WILL PREVENT INTERFERENCE TO GOVERNMENT USERS.

The government users' concern that time-sharing will not work appears to be based on a misunderstanding of how time-sharing actually operates. Notwithstanding the government users' suggestion that time-sharing is not "well understood,"[6/] it is in fact neither difficult nor complicated. We estimate that time-sharing will require a satellite to execute approximately 70 commands per 24 hours, at most. The significance of such actions is best understood when put in perspective -- a typical government satellite executes thousands of commands per 24 hours.

Furthermore, while NOAA correctly points out that time-sharing has not been approved by ITU-R,[7/] the lack of approval does not derive from an ITU-R finding that it is technically infeasible. Obtaining ITU approval is a procedural matter and is not a necessary precondition to achieve successful coordination in the U.S. among U.S. users in the relevant bands.

4/ NTIA Letter at 2; NOAA Letter.

5/ *See* NTIA Letter; Air Force Memorandum.

6/ *See* NOAA Letter.

7/ *See* NOAA Letter.

To put all concerns to rest, Final Analysis offers to show that it can time-share without interference.[8/] Final Analysis alone has invested millions in building two satellites, developing a prototype customer terminal, and constructing three ground control stations on an experimental basis, in part, to develop and test the feasibility of frequency sharing techniques.[9/] Final Analysis believes that it is unique among the Little LEO applicants in terms of the amount of time, money and energy it has invested on addressing frequency sharing and spectrum efficiency issues.[10/] Final Analysis has filed extensive and comprehensive technical analyses in its comments in this proceeding that demonstrate the efficacy of time-shared access by Little LEO operators to the 137-138 MHz NOAA and 400-401 MHz DoD bands in avoiding interference to government users in those bands.[11/] In addition, through its experimental satellite program, Final Analysis is exploring frequency sharing methods to facilitate coexistence of commercial Little LEO operations and government use in various UHF and VHF bands.

Moreover, Final Analysis has demonstrated in its comments in this proceeding and in a special briefing to NTIA that it has the capability to meet the protection requirements specified by government users. To help familiarize NTIA and the government users in the NOAA and DoD bands with the technical aspects of time-sharing under the Industry Band Sharing Plan, Final Analysis promptly held a special briefing for NTIA[12/] shortly after consensus on the Plan was reached in April, 1997. The briefing was intended to show NTIA that, assuming that certain time-sharing requirements are a condition of receiving a Little LEO license, Final Analysis possesses the technical capability to implement such

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[8/] If the FCC is concerned about the feasibility of time-sharing, it could impose a similar requirement on all Little LEO licensees seeking to operate in the NOAA and DoD bands.

[9/] *See* Final Analysis, Inc., Experimental Satellite Authorization, Call Sign KS2XCY ("FAISAT-2v"); Experimental Remote Terminal Authorization, Call Sign KS2XCZ; Experimental Ground Station Authorizations for Logan, Utah and Lanham, Maryland, Call Signs KS2XDA and WA2XHE. The third ground station is in Andoya, Norway.

[10/] DoD's claim that time-sharing "is being prompted entirely by those having no existing systems at risk and no reason for caution" is inaccurate. *See* NTIA Letter. Final Analysis alone has expended millions of its own funds to date in prosecuting its application and developing its Little LEO system.

[11/] *See* Comments of Final Analysis Communication Services, Inc., at Exhibit 2 ("Systems Analysis") filed in IB Docket No. 96-220 on December 20, 1996.

[12/] *See* Final Analysis, Briefing to NTIA "Time-Sharing Operations for Little LEO Systems."

measures to prevent interference to government users. Moreover, the NTIA briefing was designed to demonstrate that time-sharing with two Little LEO satellite systems is doable given today's satellite technology and that current technology is easily capable of much more. Even though Final Analysis believes that the imposition of certain government-specified conditions on licensing of commercial Little LEO systems may not be necessary to prevent interference to government users, Final Analysis conducted the NTIA Briefing with the assumption that it would be willing to accept such conditions if government users consider such conditions to be necessary to allow licensing of *two* commercial Little LEO systems in the same government band. If government users should insist on time-sharing with only *one* Little LEO satellite system, Final Analysis continues to believe, as stated in its initial comments, that use of a zero degree angle to calculate protection of government users is overly conservative and that use of a five or ten degree angle would be sufficient to protect government users.[13/]

Final Analysis's message to government users has been consistent throughout this proceeding: Final Analysis is willing, if necessary, to accept time-sharing restrictions as a condition of licensing, and it is the only Little LEO company that currently has the capability to employ protection measures specified by government users to protect their co-channel operations through time-sharing and other methods, even though protection parameters as specified by government users may be overly conservative.

III. TIME-SHARING AMONG ADDITIONAL LITTLE LEO OPERATORS UNDER THE INDUSTRY BAND SHARING PLAN IS TECHNICALLY FEASIBLE.

Contrary to the government users' claims, coordination among multiple satellite owners is not difficult to implement and would not pose greater risks of interference than time-sharing with one Little LEO operator or impose additional costs on government users. Furthermore, government users have accepted time-sharing as a feasible method for sharing

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[13/] In response to the *Little LEO Notice*'s request that commenters employ a zero degree elevation angle to calculate the area in which NOAA would receive protection from Little LEO satellite transmissions, Final Analysis stated in its comments that:

> a zero degree angle is conservative, as most operations are conducted at five (5) degrees and above. Nonetheless, Final Analysis has used the zero degree angle in our analysis, and *our systems are capable of using any positive angle or set of angles.*

See Comments of Final Analysis Communication Services, Inc., at Exhibit 2 ("Systems Analysis") at 8 (emphasis added).

with one satellite operator,[14] and there is no greater difficulty in sharing with two satellite operators than one.

A. Time-sharing Will Require Government Coordination With Only a Single Industry Point of Contact.

To address the government users' concerns, Final Analysis suggests that the industry could, as a condition of licensing, be required to establish a representative/one point of contact system, paid for by the industry, to provide total 24-hours-a-day, 365-days-a-year coordination. Thus, government users would not have to coordinate with multiple commercial entities.

B. Commercial Operators Would Agree to Shutdown Operations and Limit Government Users' Liability, If Necessary, To Resolve Actual Interference.

In addition, each company time-sharing in either band could be required, as a condition of licensing, to shut down their system if there is interference from either system (and that the satellite that caused the interference be quickly identified). Again, as a condition of licensing, commercial operators could be required not to hold the government responsible for lost revenues during a temporary shutdown to resolve an interference problem.

C. The Industry Band Sharing Plan Does Not Involve Time-sharing With a "Multiplicity" of Commercial Systems.

DoD's claim that the Industry Band Sharing Plan will involve a "multiplicity of commercial systems in a variety of orbits, with different modulation schemes and under the control of competitive and potentially uncoordinated entities" misstates the basic concepts of the Plan and thereby exaggerates the risk of interference.[15] First, contrary to DoD's claim that a "*multiplicity* of companies" would be involved in time-sharing, in fact, the Industry Band Sharing Plan proposes that only *two* companies time-share in the DoD band.[16]

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[14] The Air Force Memorandum states that the main factor leading it to accept time-sharing is that DMSP would have to time-share spectrum "with only one civil MSS provider." *See* Air Force Memorandum.

[15] *See* NTIA Letter.

[16] *See* Industry Band Sharing Plan.

D. The Industry Band Sharing Plan Does Not Involve "Different Modulation Schemes."

The government users incorrectly suggest that "different modulation schemes" exist under the Industry Band Sharing Plan that will somehow negatively impact government operations in those bands. Modulation is not a relevant factor in the Industry Band Sharing Plan.[17/] The Plan proposes *time-sharing* techniques to avoid interference.

E. Commercial Little LEO Operators Would Be Subject to Both Regulatory Obligations and Economic Incentives to Engage in Effective Coordination with Government Users.

The government users' assertions that the proponents of the Industry Band Sharing Plan "cannot agree among themselves on sharing arrangements" and are "competitive and potentially uncoordinated entities" gives the wrong impression that commercial Little LEO operators will not cooperate with one another just because they will be in competition. It will be in the commercial and competitive best interest of the Little LEOs to cooperate to ensure non-interference. Moreover, two competing U.S. satellite operators will have accepted automatic shutdown in an interference situation as a condition of licensing.

IV. THE COMMISSION SHOULD PROVIDE FOR TECHNICAL MEETINGS WITH GOVERNMENT USERS TO IDENTIFY AND RESOLVE ANY POTENTIAL INTERFERENCE CONCERNS.

The best way to identify whether there is any potential for interference to government users under the Industry Band Sharing Plan is to arrange for a technical meeting between government and commercial Little LEO operators.[18/] No comprehensive meeting of industry and government users has been organized to date. Final Analysis is convinced that any interference concerns not already addressed by the Industry Band Sharing Plan can be resolved in technical meetings between commercial Little LEO operators and government users in the NOAA and DoD bands. Moreover, organized and concerted technical meetings between industry and government users are necessary to accurately represent and manage the complex and voluminous record in this proceeding. Accordingly, the Commission should

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[17/] Different modulation techniques would be considered only if two satellites (with overlapping footprints) were allowed to operate in the same frequency at the same time -- a configuration that the Industry Band Sharing Plan does not even contemplate.

[18/] *See, e.g., Report of the Below 1 GHz Leo Negotiated Rulemaking Committee*, September 16, 1992.

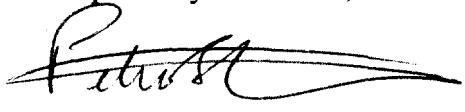
afford companies and government users in the affected bands the opportunity to meet to discuss their interference concerns and resolve them in a coordinated and on-the-record manner.

The public interest will not be served if purely speculative concerns foreclose adoption of the Industry Band Sharing Plan. Yet the FCC staff evidently is considering rejecting the Plan in favor of an alternative Staff Plan that would substantially restrict the spectrum available for commercial operations. The Staff Plan could limit competition in the Little LEO service and also increase the likelihood of potential mutual exclusivity. The staff proposal should not be adopted until it has been demonstrated that the government users' alleged interference problems exist.

V. CONCLUSION

For the foregoing reasons, Final Analysis urges the Commission to adopt the Industry Band Sharing Plan to speed the competitive deployment of commercial Little LEO operations. There is no evidence in the record that supports a finding that potential interference to government users is likely to occur as a result of adoption of the Industry Band Sharing Plan. Moreover, the commercial industry has demonstrated and continues to demonstrate its commitment to developing frequency sharing methods such as time-sharing to avoid potential interference to government users from commercial Little LEO operators. Adoption of the Industry Band Sharing Plan is in the public interest as it will promote competition through the licensing of all second-round NVNG MSS applicants and enable the rapid deployment of advanced MSS services to the public. In contrast, the Staff Plan, if adopted, would most likely result in mutual exclusivity and delay the delivery of service to the public. The industry is ready, willing and able to participate in technical meetings, if necessary, to resolve any of the government users' interference concerns not already addressed by the Industry Band Sharing Plan.

Respectfully submitted,



Philip V. Permut
Peter A. Batacan
Counsel to Final Analysis, Inc.

Attachments

Attachment A

Ex Parte Correspondence of NTIA, NOAA and Air Force

FOR AGENDA

Agenda: FYI

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
Washington, D.C. 20233
Office of Radio Frequency Management
Room 2246, SSMC-2
1325 East West Highway
Silver Spring, MD 20910

IB 96-220

H. Ng.
Comments?
Fred

April 21, 1997

RECEIVED
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Federal Communications Commission
Office of Secretary

Mr. Norbert Schroeder
Acting Chairman, IRAC
National Telecommunications
and Information Administration
U.S. Department of Commerce
Washington, D.C. 20230

Dear Mr. Schroeder,

NOAA and the Defense Agencies have reviewed the proposals put forward by second round Little LEO applicants in the wake of the FCC's NPRM on timesharing of the metsat bands at 137, 148 and 400 MHZ. We recognize the urgency with which the Commission views the matter of locating additional spectrum for the MSS, but as operators and users of existing metsat systems, we are greatly concerned that precipitous action may damage critical national assets. We are therefore taking this opportunity to bring our concerns to your attention.

Since the inception of Little LEOs, NOAA and the DOD have been cooperators in the development of the industry. Its first spectrum came from bands allocated to meteorological satellites (137, 400 MHZ bands) and military systems (148 MHZ bands). The progress made by the industry to date has been the result of careful planning and negotiated agreements which have minimized potential disruption to existing systems while allowing the MSS industry to be born. We now find these carefully drawn agreements under attack.

First, we note the absence of any international acceptance of the time sharing approach being promoted by industry. When first introduced into ITU-R (Working Party 7C, Geneva) it was summarily rejected for lack of any supporting studies. These studies remain undone and none are known to be in progress, so it is unlikely that WP7C will reach any different conclusions in the near future. Needless to say, there is no experimental evidence supporting the feasibility of time sharing.

The concept is being promoted entirely by those having no existing systems at risk and no reason for caution, and who cannot agree among themselves on sharing arrangements.

We note as well that the rationale originally presented in support of time sharing of the metsat bands was approved on the basis of limited use. Though uncomfortable with the idea, we continued the discussion on the basis of sharing with a single MSS system. Now, however, we find ourselves faced with the prospect of having to share the spectrum with a multiplicity of commercial systems in a variety of orbits, with different modulation schemes and under the

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control of competitive and potentially uncoordinated entities. This greatly exceeds the parameters to which we previously agreed, and even those of our recent discussions on timesharing.

Moreover, the agreements we originally made during 1992 negotiations concerning the 137-138 MHz band have imposed changes and restrictions on the operation of our systems. NOAA has agreed to move its future polar satellites from existing frequencies in the band to the so-called "NOAA bands," regions near the ends of the band where the MSS would be secondary. This was done with the understanding that metsats would have unencumbered use of these bands, necessary since NOAA's satellites will not be the only ones using them. Reaching these agreements involved a great deal of time and effort. To implement them is taking, in addition, a considerable amount of money for the redesign of satellites and ground station equipment. We therefore expect that the agreements originally made will now be honored by the industry. To encumber the NOAA bands with a multiplicity of commercial networks is to renege on the intent of the original agreements, making it difficult or impossible for metsats to use them in the manner that formed the basis for their creation.

The same sort of comment pertains to industry proposals for multiple MSS systems to timeshare the 400.15-401 MHZ band shortly to be used by military metsats, part of the Defense Meteorological Satellite Program (DMSP). NOAA and the DoD agencies were willing to accept the risks associated with timesharing with a single commercial system, but given the absence of any proof that the technique works, are unwilling to accept the much larger risks inherent in sharing with a multiplicity of MSS networks.

To lose effective use of these bands will increase risks to U.S. military forces worldwide, as well to emergency managers and others who depend on metsat data for weather forecasting, storm tracking, and disaster recovery. We urge NTIA to do its utmost to prevent the irrecoverable damage that could result from the unconsidered licensing of more commercial systems than technology and the spectrum will support.

Sincerely,

Frank M. Holderness
Army Representative

Bruce Swearingen
Navy Representative

Nelson Pollack
Air Force Representative

Richard Barth
Commerce Representative

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

May 7, 1997

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Federal Communications Commission
Office of Secretary

Mr. Peter Cowhey
Chief, International Bureau
Federal Communications Commission
2000 M Street, NW Room 830
Washington, D.C. 20554

Ref. IB Docket No. 96-220

We have received the enclosed correspondence from the Department of Defense and the National Oceanic and Atmospheric Administration concerning proposals that have been made to "timeshare" between meteorological satellite systems and NVNG MSS systems in the 400.15 to 401 MHz band. We believe that these are significant policy statements that need to be brought to your attention. As you probably are aware we have been briefed by Bureau staff and have been reading the various filings made concerning proposals for timesharing in this band. We are mindful of the lengthy negotiations among FCC staff and Government agencies that resulted in the proposal for timesharing that appeared in the NPRM in Docket 96-220. Changes to the proposed arrangement must, of course, be carefully considered.

Last week one of the NVNG applicants, Final Analysis, gave NTIA, DoD and Commerce representatives a briefing on its capabilities regarding timesharing. The attached correspondence was not available when we met with Final Analysis on this subject. Notwithstanding their stated serious objections, DoD and NOAA have assured us that they are continuing to consider the information provided addressing timesharing with multiple systems.

We understand your interest in bringing this proceeding to a close in the near future and will be working the various interests in to provide you with our views on this subject shortly. We would like not only a workable solution that protects DoD and NOAA systems but one that also achieves realistic NVNG MSS systems.

how soon

Sincerely,

Richard D. Parlow
Associate Administrator,
Spectrum Management

Enclosures (2)

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE

MEMORANDUM FOR ADMINISTRATOR NTIA
(ATTN: MR IRVING)

SUBJECT: Time Sharing of DMSP 400 MHz Channels

References: (a) FCC Notice of Proposed Rule Making (NPRM), FCC 96-426, IB Docket 96-220, 29 October 1996

(b) Memorandum to Ms Ruth Milkman, RE: IB Docket No. 96-220: NVNG MSS Industry Band Plan, 11 April 1997

The Defense Meteorological Support Program (DMSP) and follow-on converged system are crucial to the national security and the lives of our warfighting men and women.

In the national interest, we negotiated the spectrum-sharing conditions (Ref a) that will allow time sharing of the two DMSP downlink channels near 400 MHz with a single civil Mobile Satellite System (MSS) provider. The most important factor in our decision to accept the NPRM was that it clearly specified DMSP would have to time share spectrum with only one civil MSS provider. This and other sharing conditions greatly allayed our concerns over time delays in resolving potential operational electromagnetic interference situations.

On 11 April 1997, FCC received the Ref b memorandum from several MSS providers that proposes that more than one civil system time share DMSP downlink channels. We are very concerned with this proposal, given that the time sharing techniques outlined in the NPRM are not proven for even one provider, much less two. We anticipate that sharing with just one provider will be, at best, difficult.

Request that you convey our strong opposition to any decision that would allow more than one civil MSS provider to time share with DMSP 400 MHz downlink channels.

GREGORY S. MARTIN, Maj Gen, USAF
Director of Operational Requirements
DCS, Air & Space Operations

GEORGE P. LAMPE, Maj Gen, USAF
Deputy Director, Communications
and Information

cc: Chairman FCC, Mr Hundt
Assistant NTIA Administrator, Mr Parlow
ASD/C3I, Mr Paige
JCS/J6, LTG Buchholz
HQDA DISC4, LTG Gunther
CNO/N6, VAdm Cebrowski

UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary for
Oceans and Atmosphere
Washington, D.C. 20230

MAY - 5 1997

The Honorable Larry Irving
Assistant Secretary for Communications
and Information
National Telecommunications
and Information Administration
Department of Commerce
Washington, D.C. 20230

Dear Larry:

As you know, the National Oceanic and Atmospheric Administration (NOAA) operates a number of meteorological satellites (METSAT) and meteorological aids (METAID) in several bands which provide data essential to weather forecasting. These weather forecasts, some of which are also provided by NOAA, are used for the prediction and tracking of severe storms, floods, freezing weather hazardous to crops and aviation, and in a number of other ways which protect the life and property of the public in the United States and worldwide. METSATs and METAIDs are operated by other countries in the same bands as are used by NOAA, and their data is likewise used in the United States.

Having reviewed recent proposals to timeshare primary METSAT and METAID bands with Little LEOs, I am concerned with the threat they pose to the integrity of our operations. Timesharing proposals surfaced only recently as a result of the FCC's need to supply more spectrum than it had for use by the Mobile Satellite Systems (MSS). The technique is not well understood. It has not been approved by ITU-R, having only recently been introduced into that forum, nor has sufficient study been conducted in the United States to provide confidence that timesharing will work without unacceptable interference to METSATs. I am also concerned about the continuing proposals to reallocate portions of the METAID bands to the MSS. Reallocation prior to the development and worldwide deployment of new METAID systems is not supported by sharing studies completed to date.

I therefore urge you to deny time shared access to multiple MSS systems in any METSAT band used by NOAA until such time as technical studies have been conducted, and approved by the international community through ITU-R, to show the concept is indeed workable.

Sincerely,

D. James Baker

Attachment B

Industry Band Sharing Plan

DUPLICATE

MEMORANDUM

TO: Ruth Milkman

FROM: CTA Commercial Systems, Inc.
E-Sat, Inc.
Final Analysis Communications Services, Inc.
GE Starsys Global Positioning, Inc.
Orbital Communications Corp.
Volunteers in Technical Assistance

DATE: April 11, 1997

RE: IB Docket No. 96-220: NVNG MSS Industry Band Plan

The undersigned counsel submit this memorandum on behalf of the following second round applicants in the above referenced proceeding: CTA Commercial Systems, Inc. ("CTA"), E-Sat, Inc. ("E-Sat"), Final Analysis Communication Services, Inc. ("Final Analysis"), GE Starsys Global Positioning, Inc. ("GE Starsys"), Orbital Communications Corp. ("Orbcomm") and Volunteers in Technical Assistance ("VITA") (collectively the "Parties").

Attached hereto is a detailed technical description of the band plan proposed by the Parties for assignment of frequencies to all second round NVNG MSS applicants which: (i) includes frequency assignments for all of the second round applicants; (ii) protects existing licensees and users from harmful interference; (iii) promotes spectrum efficiency; and (iv) eliminates any potential mutual exclusivity. The Parties acknowledge that, for final coordination, some additional refinements may need to be made to the specific channel assignments set forth in this proposal, and agree to work out such refinements in good faith.

We believe that this proposal resolves the second round assignment issues in the manner most consistent with the public interest, as it will speed delivery of service to the public within a competitive industry structure. We also believe that, consistent with the provisions of Section 309 of the Communications Act of 1934, as amended, this engineering solution obviates any need for application of selection criteria, including auctions, that may otherwise be deemed necessary to resolve mutual exclusivity. Because this proposal has the support of six of the seven second round applicants, we believe that the Commission should adopt it, even if unanimous industry agreement is not achieved. Moreover, the Commission does not need to have unanimity on proposed rules in order to conclude that a fungible allocation is practical and in the public interest for many reasons. These include the fact that this proposal will not unfairly favor particular applicants, will maximize competitive entry and overall Little Leo development and will obviate mutual exclusivity and enable grants without a hearing.

We emphasize that the enclosed proposal represents an accommodation by the Parties to facilitate an expeditious resolution of this proceeding. If such a resolution is not forthcoming, each of the participating applicants reserves its rights to seek different frequency allocations, and/or systems of different sizes, than those suggested here. In addition, the Parties are accepting this proposal as an interim solution, and reserve all rights to seek any additional frequencies that may become available for NVNG MSS use as a result of the 1997 World Radio Conference.

We are anxious to bring this proceeding to a positive conclusion and welcome your further comments or questions on this proposal.

Respectfully submitted,

Phillip L. Spector
Diane C. Gaylor
Counsel for CTA

Peter A. Rohrbach
Counsel for GE Starsys

Leslie A. Taylor
Guy Christiansen
Counsel for E-Sat

Stephen L. Goodman
Counsel for Orbcomm

Aileen A. Pisciotta
Peter A. Batacan
Counsel for Final Analysis

Henry Goldberg
Joseph A. Godles
Counsel for VITA

Attachment

cc: William F. Caton
Harry Ng
Thomas Tycz
Cassandra Thomas
Julie Garcia
Paula Ford
William Hatch
Nelson Pollack
Richard Barth
Robert Mazer

We emphasize that the enclosed proposal represents an accommodation by the Parties to facilitate an expeditious resolution of this proceeding. If such a resolution is not forthcoming, each of the participating applicants reserves its rights to seek different frequency allocations, and/or systems of different sizes, than those suggested here. In addition, the Parties are accepting this proposal as an interim solution, and reserve all rights to seek any additional frequencies that may become available for NVNG MSS use as a result of the 1997 World Radio Conference.

We are anxious to bring this proceeding to a positive conclusion and welcome your further comments or questions on this proposal.

Respectfully submitted,

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Attachment

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DC01/PISCA/38547.41

IB Docket No. 96-220

PARTIES' PROPOSAL

General Introduction

The proposed band plan includes assignments for all second round NVNG MSS applicants as specified below within the limits of the currently available spectrum and its resulting constraints on both first and second round parties. It is contemplated that all systems would be eligible for additional spectrum to reduce capacity constraints when such spectrum can be allocated and assigned.

Three different systems are identified for new applicants proposing to operate in the FDMA/TDMA mode: System Z is a small constellation, designed to accommodate CTA Commercial Systems, Inc. ("CTA"). Systems X and Y reflect two fungible assignments for two large constellations, presumed to be those proposed by Final Analysis Communication Services, Inc. ("Final Analysis") and Leo One USA Corporation ("Leo One"). No presumption is made as to which system (X or Y) ultimately will be assigned to either of the large constellation applicants.

For the one new applicant proposing to operate in the CDMA mode, E-Sat, Inc. ("E-Sat"), operating parameters and requirements for coordinating with existing licensees (GE Starsys and Orbcomm) are separately identified.

Coordination with Starsys will be required. In all cases new applicants (including Orbcomm) will operate in the NOAA Inner Channels in such a way that the aggregate interference caused by the simultaneous operation of channels allocated in the second round of NVNG MSS proceedings in the 137-138 MHz band will not degrade the Starsys link margin more than 1/3 (approximately .77 dB). This will require e.i.r.p. limits at the satellites for feeder link channels operating in the primary allocation area (137.175-137.825 MHz), and avoidance of transmissions when in the main beam of the Starsys ground station antennas, on a worldwide basis.

The band plan provides for certain modifications to assignments following anticipated NOAA migration from the "NOAA Inner Channels" to the "NOAA Outer Bands" in the 137-138 MHz band (in approximately 2002).

DOWNLINK

Introduction to Downlink Assignments

Downlink assignments for new NVNG MSS applicants are made in both the 137-138 MHz and 400-401 MHz bands. System Z operates exclusively in the 137-138 MHz band for both feeder links and service links. Systems X and Y are restricted to feeder links only in the 137-138 MHz band and service links and additional feeder links as required in the 400-401 MHz Band. Additional channel assignments are also identified for Orbcomm.

Assignments in the 137-138 MHz band include channels in NOAA bands as follows:

NOAA Outer Bands
137.025-137.175 and 137.825-138.0 MHz

NOAA Inner Channels (including guard bands)[1]
137.325-137.375, 137.4725-137.535, 137.585-137.6505, and 137.7405-137.8025 MHz

Proposals are made for different operating parameters in these bands both before and after NOAA migration to the outer bands in about 2002.

SYSTEM Z (CTA)

137-138 MHz Band

System Z (CTA) operates both feeder links and service links in the 137-138 MHz band, as specified below.

NOAA Outer Band Assignment

137.025-137.075 MHz
137.950-138.0 MHz

This allocation can be used for both feeder link and service link operations on a primary basis until launch of first EUMETSAT and/or first NOAA satellite using the NOAA Outer Band (about 2002). The allocation can then be used on a time shared basis with NOAA and EUMETSAT.

NOAA Inner Channels (including guard bands) Assignment

Allocations in these bands are for feeder links only:

137.325-137.340 MHz
137.7875-137.8025 MHz

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[1] Some of the assignments specified herein are in the guard bands of the NOAA Inner Channels. If for any reason the Commission should not permit use of any of these guard bands by Little LEO systems, or should restrict their use in any way that would limit Little LEO operation in any of these bands, the assignments of these four inner channels will be reallocated between the four (4) parties with the following order of priority of maintaining the initial size of the NOAA Inner Channel assignments for each of the parties: first - CTA, second - Orbcomm, third - System X and fourth - System Y.

Before NOAA Migration to Outer Band

This allocation would be time shared with NOAA satellites currently using the NOAA Inner Channels until the satellites are retired. Operations in these channels will not exceed the equivalent feeder link power (8 dBW @ 775 km altitude) per channel, and must be closely coordinated with Starsys as discussed above.

After NOAA Migration to Outer Band

The allocation can be used on a primary basis after the NOAA satellites using the NOAA Inner Channels are retired. At that time, Starsys would be permitted to increase its power by three dB. System Z, Starsys, and E-Sat would continue to coordinate their respective operations in these channels on the same terms as discussed above.

SYSTEM X

137-138 MHz BAND

System X can perform only feeder link operations in this band.

NOAA Outer Band Assignment

137.075-137.125 MHz
137.900-137.950 MHz

This allocation can be used for only feeder link operations (EIRP of 8 dBW or less at 775 km altitude). This band can be used until launch of first EUMETSAT and/or first NOAA satellite using the NOAA Outer Band (about 2002). The allocation can then be used on a time shared basis with NOAA and EUMETSAT.

NOAA Inner Channels (including guard bands) Assignment

137.585-137.6505 MHz

Before NOAA Migration to Outer Band

This allocation can be time shared with NOAA satellites currently using spectrum until the satellites are retired. Operations in this channel will not exceed the equivalent feeder link power (8 dBW @ 775 km altitude) per channel, and must be closely coordinated with Starsys as discussed above.

After NOAA Migration to Outer Band

The NOAA inner channels can be used on a primary basis after NOAA migration. Starsys

would be permitted to increase its power by three dB. Coordination with Starsys continues to be a requirement on the same terms.

400-401 MHz BAND

System X can use this band for service links and, perhaps, for additional feeder link operations. The use of this band is subject to time sharing and other necessary coordination with DMSP.

400.150-400.350 MHz and 400.645-400.845 MHz

SYSTEM Y

137-138 MHz BAND

System Y can perform only feeder link operations in this band.

NOAA Outer Band Assignment

137.125-137.175 MHz
137.850-137.900 MHz

This allocation can be used for only feeder link operations (with EIRP of 8 dBW or less at 775 km altitude). This band can be used until launch of first EUMETSAT and/or first NOAA satellite using the NOAA Outer Band (about 2002). The allocation can then be used on a time shared basis with NOAA and EUMETSAT.

NOAA Inner Channels (including guard bands) Assignment

137.4725-137.535 MHz

Before NOAA Migration to Outer Band

This allocation can be time shared with NOAA satellites currently using spectrum until the satellites are retired. Operations in this channel will not exceed the equivalent feeder link power (8 dBW @ 775 km altitude) per channel, and must be closely coordinated with Starsys as discussed above.

After NOAA Migration to Outer Band

The NOAA inner channels can be used on a primary basis after NOAA migration. Starsys would be permitted to increase its power by three dB. Coordination with Starsys continues to be a requirement on the same terms.

400-401 MHz BAND

System Y can use this band for service links and, perhaps, for additional feeder link operations. The use of this band is subject to time sharing and other necessary coordination with DMSP and VITA.

400.350-400.5517 MHz and 400.845-401.0 MHz

ORBCOMM

Orbcomm can use NOAA Inner Channels for feeder links as follow:

NOAA Inner Channels (including guard bands) Assignment

137.340-137.375 MHz
137.7405-137.7875 MHz

Before NOAA Migration to Outer Band

This allocation can be time shared with NOAA satellites currently using spectrum until the satellites are retired. Operations in these channels will not exceed the equivalent feeder link power (8 dBW @ 775 km altitude) per channel, and must be closely coordinated with Starsys as discussed above.

After NOAA Migration to Outer Band

The NOAA inner channels can be used on a primary basis. Starsys would be permitted to increase its power by three dB. Coordination with Starsys continues to be a requirement on the same terms.

E-SAT

E-Sat's proposed spectrum use and coordination plan is provided as Attachment A hereto.

UPLINK

Introduction to Uplink Assignments

Uplink assignments for new NVNG MSS applicants are made in the 149 MHz band. In addition, VITA's first round system will gain access to the full FDMA/TDMA portion of the 149 MHz band. For service links, the FDMA/TDMA systems will share the 148.905-149.900 MHz band, as specified below. For feeder links, uplink assignments permitting viable system operations are proposed for Systems, X, Y and Z in the 100 kHz of spectrum currently

available in the lower Transit band (149.95-150.05 MHz)[2]. However, as these assignments result in feeder link uplinks of less than 50 kHz, it is preferable to allocate additional uplink spectrum in this proceeding, in particular, the upper Transit Band (399.9-400.05 MHz), which is already allocated globally for NVNG services.

Service Links

CTA (System Z), System X, and System Y will operate in the 148.905-149.900 MHz band using DCAAS or similar technique. VITA also will operate in the 148.905-149.900 MHz band using DCAAS or similar technique.

Feeder Links

Without Allocation of Upper Transit Band

System Z (CTA): 149.950-149.975 MHz
System X: 149.975-150.0125 MHz
System Y: 150.0125-150.05 MHz

With Allocation of Upper Transit Band

Subject to the successful conclusion of an agreement with OHB of Germany allowing a U.S. Little Leo system to use 50 kHz of spectrum in the upper Transit band (399.900-400.05 MHz), System Z (CTA) will migrate to such 50 kHz, and System X and Y will split the 149.950-150.05 MHz available in the lower Transit band as follows:

System X: 149.950-150.00 MHz
System Y: 150.00-150.05 MHz

Allocation and Assignment of WRC-95 Bands

Several of the Parties have proposed that the Commission allocate and assign WRC-95 spectrum in the proceeding to help alleviate congestion in uplink bands. Specifically, the Parties propose that System X and Y each be assigned 200 kHz bands in either the 455-456 MHz band or the 459-460 MHz band as dedicated feeder links; and that System Z be assigned a 50 kHz band in either the 455-456 MHz band or the 459-460 MHz band as a dedicated feeder link. The remaining spectrum would be shared among the applicants on a coordinated basis for service links using the DCAAS or similar techniques.

In addition, the Parties anticipate that additional spectrum will be allocated at WRC-97 for NVNG feeder links, as well as for other NVNG spectrum requirements. To the extent that

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[2] The frequencies between 149.9 - 149.950 MHz are currently allocated to S-80, and are not addressed in this proposal.